

CLAIMS

What is claimed is:

1. A laser scanning unit comprising:
a light source unit generating a plurality of laser beams;
a horizontal polarizer arranged on an optical axis of at least one of the plurality of laser beams;
a vertical polarizer arranged on all of the other optical axis of the plurality of laser beams;
a polygon mirror deflecting a horizontally-polarized beam and a vertically-polarized beam respectively generated by the horizontal and the vertical polarizers within a range of a predetermined angle; and
an optical filter passing a horizontally-polarized beam of the plurality of polarized beams deflected by the polygon mirror, and reflecting a vertically-polarized beam at a specified angle from the horizontally-polarized beam.
2. The laser scanning unit of claim 1, further comprising at least one collimating lens between the light source unit and the horizontal and the vertical polarizers, to transform the laser beams into parallel beams.
3. The laser scanning unit of claim 1, further comprising at least one cylinder lens between the light source unit and the horizontal and the vertical polarizers, to transform the laser beams into linear beams.
4. The laser scanning unit of claim 1, further comprising at least one collimating lens and at least one cylinder lens between the light source unit and the horizontal and the vertical polarizers, the collimating lens transforming the laser beams into parallel beams, the cylinder lens transforming the parallel beams into linear beams of horizontal directionality.
5. The laser scanning unit of claim 1, further comprising a first mirror group having a plurality of mirror between the light source unit and the horizontal and the vertical polarizers, to reflect the laser beams to the horizontal and the vertical polarizers.

6. The laser scanning unit of claim 5, further comprising a second mirror group comprising a plurality of mirrors to reflect the laser beams from the optical filter onto a plurality of photosensitive media.

7. The laser scanning unit of claim 1, further comprising an $f\theta$ lens between the polygon mirror and the optical filter, to refract the laser beams in a scanning direction.

8. The laser scanning unit of claim 1, wherein the optical filter is a beam splitter.

9. The laser scanning unit of claim 1, wherein the optical filter is a glass having a curvature to form a Brewster's angle.

10. A laser scanning unit comprising:
a light source unit generating a plurality of laser beams;
horizontal and vertical polarizers arranged on an optical axis of the plurality of laser beams;
a polygon mirror deflecting a horizontally-polarized beam and a vertically-polarized beam respectively generated by the horizontal and the vertical polarizers within a predetermined angle range;
a first optical filter passing the horizontally-polarized beam deflected by the polygon mirror, and reflecting the vertically-polarized beam;
a second optical filter reflecting the horizontally-polarized beam deflected by the polygon mirror, and passing the vertically-polarized beam; and
a plurality of mirrors reflecting the laser beams from the first and second optical filters onto a plurality of photosensitive media.

11. The laser scanning unit of claim 10, further comprising at least one collimating lens between the light source unit and the horizontal and the vertical polarizers, to transform the laser beams into parallel beams.

12. The laser scanning unit of claim 10, further comprising at least one cylinder lens between the light source unit and the horizontal and the vertical polarizers, to transform the laser beams into linear beams.

13. The laser scanning unit of claim 10, further comprising at least one collimating lens and at least one cylinder lens between the light source unit and the horizontal and the vertical polarizers, the collimating lens transforming the laser beams into parallel beams, the cylinder lens transforming the parallel beams into linear beams of horizontal directionality.

14. The laser scanning unit of claim 10, further comprising a mirror group having a plurality of mirrors between the light source unit and the horizontal and the vertical polarizers, to reflect the laser beams to the horizontal and the vertical polarizers.

15. The laser scanning unit of claim 10, further comprising an $f\theta$ lens between the polygon mirror and the first and second optical filters to refract the laser beams in a scanning direction.

16. The laser scanning unit of claim 10, wherein the first and second optical filters are beam splitters.

17. The laser scanning unit of claim 10, wherein the first and second optical filters are glasses having a curvature to form a Brewster's angle.